

SERVICE MANUAL

For Dealers and Distributors of
CHAMBERS RANGES
that "cook with the gas turned off"

Covers "B" and "BZ" Models

10-B, 11-B, 11-BZ, 12-B, 12-BZ, 14-B, 14-BZ, 15-B, 15-BZ, 15-B-IB
and models or styles of these same numbers plus additional letters and numbers indicating finish

Material under heading "Installation, Adjustment and Service Instructions" is included in an envelope in every Chambers Range shipped from the factory. It is a complete guide in itself, explaining HOW to install, adjust and render all ordinary service.

Additional information, with diagrams, amplifies this original material, and explains pictorially WHY certain things must be done.

Knowing that a Chambers Range, properly sold and installed, will sell many more Chambers Ranges, Chambers Corporation seeks the intelligent co-operation of its valued distributors and dealers.

CONTENTS

Cleaning Instructions for User.....	2	Thermostat	14, 15
Installation, Adjustment and Service Instructions (complete information shipped with every Chambers Range) 3, 4, 5, 6		Conversion (Change-over Data).....	15, 16, 17
Recommended Tools	8, 9	Pilot and Burner Data	18
Broiler and Griddle	7, 8, 9, 10	Drip Ring Data	19
Thermowell	11	Location of Model and Serial Tag.....	19
Gas Tubing Diagram	11	Timer Installation	19, 20
Dampers, Doors and Valves	12, 13, 14	Different Gas Adjustments for Different Oven Burners	20

Many 8-model parts, or similar ones, are used on older last-controlled Chambers Ranges. When information required for older models cannot be found herein, communicate with your supplier, giving complete model and serial numbers of the range in question.

Chambers COOKS WITH THE GAS TURNED *off!*®

CHAMBERS, 2464 North Meridian Street, Indianapolis, Indiana

HOW TO CLEAN YOUR CHAMBERS RANGE

Information for User in addition to cleaning instructions in back of cook book.

WASH AFTER EACH USING, any soiled parts with mild soap suds, just as you do your cooking utensils. If necessary, scour with any of the popular non-abrasive scouring powders. This applies alike to porcelain enamel, plated and polished metal parts. There also are several non-abrasive cleaners in paste form now on the market, excellent for porcelain and plated surfaces.

The chrome cooking top should be scoured only when absolutely necessary, to assure long life. Lactic acid in milk, fruit juices, and even minerals in much of our drinking water, will spot porcelain if not removed promptly. Wipe off boil-overs and spots at once.

NEVER WASH PORCELAIN WHILE IT IS HOT: Don't subject it to sudden temperature changes; it is glass fused on metal.

ALWAYS WIPE OFF GRIDDLE before lighting broiler burner. Little splatterings from top stove cooking are not conspicuous until the griddle gets hot; then they burn in and turn black.

NEVER USE FULL BROILER FLAME FOR GRIDDLE COOKING: If foods stick to the griddle, the flame probably is too high. See cook book for specific griddle temperature instructions. Griddle is not considered "greaseless," though only a little fat is required for foods containing liberal amounts of shortening. Enrich griddle cake batters with melted shortening; then the griddle can be greased very lightly. Test temperature for "the dancing drop of water" as explained in cook book.

YOUR GRIDDLE IS A COOKING UTENSIL: Clean it and control its temperature as you would for any separate skillet or griddle. It can be removed and scoured in the sink.

SOAK GRIDDLE WHILE IT COOLS: Before the griddle cools completely after use, shake scouring powder on it and pour on a cup or two of water. Soak up water with paper or cloth when ready to remove griddle from range to wash with pots and pans.

"COOK OFF" BADLY BURNED SPOTS on griddle. Light a small flame under it; shake on scouring powder, and pour on water. Cook gently. Then sink a 4-tined fork into a steel wool soap pad such as SOS or Brillo (so that you won't burn yourself or scratch the griddle either), and carefully push the pad over the hot griddle. "Hot scouring" is much more effective than "cold." This never should be needed if the preventive measures above are used.

NEVER IMMERSE THERMOWELL LID IN WATER. Wipe off or scour, but not in a dishpan.

TO CLEAN OUT BOTTOM OF THERMOWELL: Lift out grate and burner. Smother out the Thermowell pilot with your damp dish cloth; the amount of gas that escapes during a short cleaning process is not harmful.

If there is dry, encrusted dirt in the bottom, place a paper in the service cabinet under the Thermowell burner opening. Scrape dry dirt and waste through this opening, onto the paper, with pancake turner or spatula. The paper is easy to remove. Wipe off bottom and sides with damp, soapy cloth, scouring if necessary; then wipe dry. With grate and drip ring removed from front right burner, you can see to replace Thermowell burner over its orifice cap. Relight pilot. Be sure to put Thermowell grate up on the four projections in the lining, and not down on the Thermowell burner.

TO CLEAN OVEN: Wipe off (and scour if necessary) walls, door, racks, runners on which racks rest, and cast door frames. Baffle plate can be removed for cleaning, if necessary. Oven heat turns color of racks and door frames to a bronze tone; this will not scrub off; it is inherent in the metal. After cleaning cast iron oven door frames, wipe with oily cloth. This is not necessary but will help to eliminate that rusty look which sometimes appears on these cast parts.

If baffle plate and oven burner are removed, be sure to replace them properly. Remove the loose bottom of the service cabinet to place oven burner over its orifice cap properly.

TO CLEAN TOP BURNERS: Wipe off with damp, soapy cloth. If you cook on retained heat, and take full advantage of your Chambers Range, these top burners will go for weeks with very little cleaning necessary.

If holes are stopped up, open with an ice pick or similar pointed instrument. Lift out and shake to dislodge offending particles. Rarely, if ever, should it be necessary to boil out burners, but do so only in a very mild solution of sal soda. Either leave one burner in place until the other burners have been cleaned and dried over it, or dry out burners in oven. Be sure to replace burners properly and put pilot tubes firmly in place.

CLEAN INSIDE BROILER BOX as you would porcelain cooking utensils, scouring if necessary. Sizzling Platter can be washed with the dishes, but sometimes it is easier first to heat it in the oven or over a top burner to melt grease for easy pouring from "gravy well" in front of platter.

CARE OF COOKING TOP: Anything spilled on the top when it is in use, should be wiped off as soon as possible with a damp cloth. Do not use cold water if the top is hot.

DON'T REMOVE BASE: It is an integral part of your equipment, and its removal is a service man's job.

NEVER LUBRICATE GAS VALVES WITH ORDINARY OIL: It will make them leak. For valve lubrication, consult your Chambers Range Dealer or write your local distributor.

ALWAYS GIVE COMPLETE MODEL AND SERIAL NUMBERS of your range when requesting information. Model and serial numbers are on the name plate, which is bolted to the top edge of the Thermowell and is found by removing the right front grate and drip ring. See page 19.

Installation, Adjustment & Service Instructions for "B" AND "BZ" SERIES CHAMBERS GAS RANGES

(11-B, 11-BZ, 12-B, 12-BZ, 14-B, 14-BZ, 15-B, 15-BZ, 15-B-IB)

DELIVERY TO DEALER OR DISTRIBUTOR: All shipments are made F. O. B. Shelbyville or, your local distributor and any claims for damage must be filed by the consignee. It is important that each range be carefully inspected at the time it is received by the dealer or distributor. Porcelain panels can be inspected easily through the crate openings and notation of any damage made on the freight bill. If necessary, a representative of the delivering carrier can be called in to make his own inspection and report, which can be supplemented by the usual formal claim. Damage of concealed nature (that is, not noticeable until the time of uncrating) can be called to the attention of the carrier in the same manner by notification of intent to file claim.

CORRECT INSTALLATION PROCEDURE

REMOVE CRATE: The crate can be removed by pulling the nails that hold the four vertical sections to the crate bottom and lifting the entire crate from the range, or by removing each section starting with the top and then the four sides. Break metal band and remove baffle plate from crate. Break metal band holding base panels and top cover. The cloth bag containing leg bolts, nuts, spacers and rear base brackets (R & L) is found in the Thermowell. Place the range on a short pair of trestles so that the crate bolts are accessible and remove these bolts. Remove the crate bottom and allow the range to rest on the trestles. Place the nuts removed from the crate bolts on the leg bolts (found packed in the Thermowell) and thread into tapped holes next to the square holes from which the crate bottom bolts were removed. Make sure the lock nuts are tight against the corner gusset. The range can now be placed on its legs.

PUT ON SILVERLITE BACK: The Silverlite back, when unpacked from the carton, is completely assembled, ready to be installed on the range. Bolts and spacers are in a small cloth bag. Remove the two top bolts and crab washers on each side of the body back. Remove two bolts which hold the supporting brackets to the cooking top in the center of the back. Loosen two bolts in center of body back. With a screw driver, force the two reinforcements, welded to the body back, away from the cooking top, to provide space between body back and cooking top. Place completely assembled Silverlite back on the range, making sure that the porcelain is against the cooking top. Place spacers on the four long bolts and

properly locate through the clearance hole visible from the outer black panel of the Silverlite back. Thread these bolts a short distance into the cast-iron cooking top, but do not tighten until the two angles attached to the outer edge of the Silverlite back have been tightened. Fasten the angle on each side of the Silverlite back to the cooking top with bolts provided. Then use the same two bolts and crab washers, previously removed, to fasten the lower part of the angle to the range. Tighten the four long bolts with sleeves until porcelain is against cooking top. Also tighten the two bolts located in the center of the body back. Silverlite back assembly should now be secure on the range.

PUT ON STANDARD BACK: This back is bolted on by four bolts through the back brackets into four tapped holes in the cross flue. Back is complete, ready for assembly, when removed from the carton. To align back with range, adjust with two small bolts on each bracket. Leave $\frac{1}{4}$ " space between back and top cover balustrade.

MAKE GAS HOOK-UP: The gas hook-up should be made with $\frac{1}{2}$ " copper or aluminum tubing with proper connections and fittings. The gas pipe from the meter should be placed close to the baseboard to allow range to be installed as close to the wall as manifold will permit. The aluminum tubing should be connected to range manifold and gas pipe while range is a short distance from the wall. Under no circumstances should the tubing go through the floor. After connections have been tightened, range can be pushed against the wall.

LEVEL RANGE: First loosen lock nuts on the adjustable leg bolts; then use a wrench on the square shoulders of the leg bolts to turn them to desired height. Check sides of cooking top with a level at least 9" long. Make three top burner grates as level as possible in both directions. Then check oven rack. There is $\frac{1}{4}$ " adjustment on oven rack runners for leveling racks. After range is level, tighten lock nuts against range frame, making sure leg bolts do not move in the process.

PUT ON BASE: There are three black base panels: one front and two ends. Necessary bolts and base brackets are in cloth bag in Thermowell. Base end panels are interchangeable and should be fastened to front base panel with bolts provided. Place base brackets on rear of frame with bolts threaded into two tapped holes located on lower part of frame. These brackets are not interchangeable. The small folded edge must protrude forward to receive the clip attached to base end panel. Place completely assembled base under

the range, making sure base end panels slip onto brackets. Fasten front base panel to range frame with two hexagon bolts provided. These screw vertically into frame.

BURNER ADJUSTMENTS

Ranges equipped at the factory for liquefied petroleum gas require no gas adjustment of oven, broiler, Thermowell and top burners; they have fixed orifices. Height of gas flame is slightly lower than for city gases. However, usual air, pilot and by-pass adjustments must be made.

OVEN BURNER: Set thermostat dial at 400°; light oven burner and turn gas on full. Adjust flame by moving air shutter and orifice cap until there is a $\frac{3}{4}$ " soft blue cone on each port.

OVEN SAFETY PILOT: Adjust safety pilot by moving the adjustment pin, located on the right underneath side of the thermostat, inside service cabinet. This yellow flame should be about $\frac{1}{4}$ " high, should touch lead-up holes on front of oven burner to ignite burner if necessary. This adjustment can be made by hand, without a screw driver.

OVEN BY-PASS: Turn thermostat dial to 70°. Adjust by-pass by moving adjustment pin on left underneath side of thermostat, inside service cabinet, to about $\frac{1}{8}$ " flame. This minimum flame should continue to burn when oven door is opened and closed normally.

THERMOSTAT: It is not necessary to check thermostat by placing thermometer in oven. Thermostat has been calibrated carefully by manufacturer and should not be changed unless difficulty arises.

BROILER BURNER: Light broiler burner and turn gas on full. Adjust flame by moving mixer shutter and orifice cap until there is a $\frac{3}{4}$ " soft blue cone on each port on the "B" model. A $\frac{1}{4}$ " soft blue cone on each port of the "BZ" model. Griddle and Sizzling Platter should be moved up and down to check mechanical smoothness.

TOP BURNER AND THERMOWELL PILOTS: Adjustment screws for top and Thermowell pilots are on the manifold inside range. Adjust both pilots to about $\frac{1}{4}$ " height. These have no air adjustment; therefore burn with slightly yellow tip. Apply heat to pilot petcocks to burn out excess lubricant; make final adjustments.

THERMOWELL BURNER: Turn Thermowell burner on full and adjust flame by moving mixer shutter and orifice cap until a $\frac{3}{8}$ " soft blue cone is obtained. Loosen the wing nut on mixer shutter bolt to make this adjustment; tighten wing nut after final adjustment.

TOP BURNER: Turn top burner on full and adjust flame by moving mixer shutter and orifice cap until $\frac{3}{8}$ " soft blue cone is obtained. Loosen wing nut on mixer shutter bolt to make this adjustment; tighten wing nut after final adjustment. Be sure flash tubes are in place.

BURNER INPUT: For the convenience of those having a meter at their disposal, the following BTU ratings should be secured:

"B" model:

Thermowell and Top burners 9,000 BTU per. hr.
Oven and Broiler burners 21,000 BTU per. hr.

"BZ" model:

Thermowell and Top burners 9,000 BTU per. hr.
Oven burner 21,000 BTU per. hr.
Broiler burner 15,000 BTU per. hr.

CHECK FOR LEAKS: All joints on range and on tubing hook-up should be checked with gas on. This can be done with open flame or soap suds. For flame testing, use long taper, especially on liquefied petroleum gas.

IMPORTANT: Patented flue caps carrying water cups or packed with steel wool, etc. should never be tolerated, as they frequently obstruct ventilation necessary for proper combustion in the oven.

REPLACEMENT OF PANELS

SERVICE POLICY: Porcelain enamel is essentially glass and is therefore breakable like any ordinary piece of glassware. Before ranges leave the factory they are thoroughly inspected and are in A-1 condition when turned over to the transportation companies.

We cannot assume responsibility for damaged enamel and accordingly suggest that dealers (for self-protection) file claim locally with the delivering carrier for any porcelain damage that may show upon delivery. By following this procedure, full recovery for the value of parts involved may be obtained from the transportation company.

Credit cannot be allowed for chipped porcelain; therefore, please do not return such parts to the factory as they will not be accepted. No parts are to be returned without approval of authorized factory representatives or written factory authority. In such case it is understood that returns will be made prepaid.

MAIN FRONT PANEL: The porcelain front is held in place by eight bolts—three at the top, three at the bottom and two located on either side of the thermostat. One is reached through the hole in the front of the broiler box on the left side: one through the left front top burner opening in the center of the range; one through the right top burner hole on the right hand side. The two by the thermostat may be reached from the cabinet compartment. The three bottom nuts are found: one in the inside cabinet front which can be reached in the cabinet compartment, and the other two in the cast oven front under the baffle plate in the oven. By loosening the set screws of the griddle lift handle, the broiler lift handle, the thermostat dial and handle, and the six gas valve handles, these can be removed easily. The thumb plates can be removed singly by lifting and pulling outward on them at the same time. The oven door keeper is taken off by inserting a long pin in the hole in the flat side and backing it off the threaded stud on which it is mounted.

END PANELS: The two porcelain end panels are interchangeable. They can easily be taken off by removing two hexagon head bolts from the bottom edge of each panel, pulling it out at bottom, and letting it slide down from under the cooking top. On the 15-B-IB model the two end panels are not interchangeable, but are removed in the same manner as described above.

OUTSIDE OVEN DOOR PANEL: Remove the inside oven door lining by taking out the four bolts and asbestos washers from the four corners of the lining, also the entire amount of rock wool. The oven door handle block is removed by taking out the three bolts, being careful not to lose the small sleeves which fit between the door block and the cast iron door frame on the two top bolts. Remove four nuts at the corners of the cast frame.

IMPORTANT! When replacing this panel and packing the rock wool in the door, the wool must be evenly and carefully distributed for the proper retention of heat.

CABINET DOOR PANEL: First, release the two springs which are attached to the cabinet door hinge leaf, then remove the four bolts and asbestos washers from the inside cabinet door lining.

STANDARD TOP COVERS (11-B, 11-BZ, 12-B and 12-BZ): Release the two springs on the rear of the range and remove from each hinge two bolts which hold hinge to the cooking top. The top cover as a unit can then be removed. If necessary, the balustrade can be removed by taking out one small bolt at each end. Either half of the top cover can be dismantled by removing the small screws holding reinforcements to top cover, while the assembly is inverted upon some clean, smooth surface.

SILVERLITE TOP COVERS (14-B, 14-BZ, 15-B, 15-BZ and 15-B-IB): This top cover can be removed by taking out two bolts in each of the back hinges located in the back edge of the cooking top. It can be dismantled by removing six bolts from each section of liner.

SILVERLITE BACK: All assembly bolts are visible and easily accessible for dismantling this back.

DISMANTLING OF ASSEMBLIES, ETC.

BODY BACK: The body back is held in position by ten bolts: three on each side of the range in the corner vertical angles, two through the reinforcements into the cooking top, and two long bolts in the center of the oven.

COOKING TOP: Remove back assembly, also the cross flue and body back. The porcelain main front panel must be removed, as described elsewhere, also the left end panel. Take out all top burners, grates and drip rings; the Thermowell burner and grate; and the broiler burner, pan, and griddle.

The cooking top is held in place by three hexagon head bolts in the front and two oval head bolts at the extreme rear corners. The left front bolt can

be easily reached through the square hole in the front of the broiler box where the head is visible; the center front bolt through the left front burner opening; and the right front bolt through the right front burner opening. Disconnect all tubing (except that of the oven) from the mixer pins, including the tubing of the top and Thermowell pilots. The Thermowell damper connecting rod which runs from the valve handle to the damper in the rear must be unscrewed from the cross thread rivet stud in the damper lever. One bolt located just to the left of the broiler adjusting handle shaft at the front of the range must be withdrawn also.

The broiler burner counterbalance spring must be disconnected by backing off the two lock nuts where they project at the left edge of the front top channel just below the broiler box. Take out one of the bolts holding the broiler burner shaft end spring retainer, releasing the spring so it can be taken out.

The complete top assembly can be moved straight back about four or five inches and lifted from the range. Be sure the broiler burner shaft is held in close to the broiler box so that it does not catch on the left body end. If necessary, the body end can be pulled out a little to allow the end of this shaft to pass.

When removing the broiler box or Thermowell assembly, the top should be inverted on some clean, smooth surface.

BROILER BOX: The broiler box can be removed from the top by taking out seven bolts: three on each side and one at the front.

THERMOWELL UNIT: The Thermowell is held in place by three bolts: two at the rear and one at the front. The Thermowell inside hull can be removed from the outside hull by taking off the outside bottom, the damper, and removing the rock wool.

OVEN DOOR: Remove oven door panel as described above. This exposes the ends of the split rivets which connect the stop rods to the cast oven door frame as well as those by which the door frame is attached to the inside cast oven front. Compress split ends and withdraw rivets, but do not let rod spring back through slot into inside of range.

OVEN DOOR SPRINGS: The springs can be withdrawn from the back of the range after the body back has been taken off. They are held in place by two nuts on the rear ends of each of the door stop rods. Remove these nuts, pull the housing out slightly until the spring can be reached, then withdraw the spring without letting the door stop rod slip back through slot in the cast oven front.

TOP PILOT: Disconnect the aluminum gas tube from the petcock at the manifold, also remove the flash tubes. Take out the two screws which hold the top pilot bracket to the cooking top, thus freeing the pilot assembly. Of course, if the pilot is to be removed permanently, the petcock should be removed from the filter or manifold and the hole plugged with a $\frac{1}{8}$ " pipe plug.

THERMOWELL PILOT: Disconnect the aluminum gas tube from both the petcock and the lower end of the pilot head under the Thermowell. Remove lock

nut from bottom end of pilot head so that head can be withdrawn from inside the well. The petcock should be removed from the filter or manifold, and the hole plugged, if the pilot is removed permanently.

THERMOSTAT: The thermostat is held in place by one screw which is easily accessible through the right front top burner opening. After the two gas tubes and the oven lighter tube are disconnected from the thermostat, it can be lowered and laid on the cabinet bottom while the capillary tube and bulb are withdrawn through the wall of the oven. Use extreme care during this latter operation, as the capillary tube and bulb are sensitive and damage to them makes the thermostat useless.

THERMOSTAT CALIBRATION: Place a reliable mercury thermometer in the center of the oven and set the dial at 400°. Take a first reading at the end of twenty minutes, and additional readings at twenty-five and thirty minutes from time of lighting. If the three readings correspond, the oven is in calibration.

Model "AQ" thermostat, part #4145, on "B" model range. If, however, the temperature reading is more than 25° from the dial setting, carefully loosen the set screw on the underneath side of the dial handle and pull the dial straight off the shaft. Replace it at the correct temperature setting, being careful not to move the thermostat shaft while the change is being made.

Model "2200S" thermostat used on "BZ" models, requires moving the sub-dial for recalibration. This is done by first removing the dial and then loosen the two small calibration screws holding the sub-dial. Now move the sub-dial to correspond with the temperature in the oven and tighten screws. Care should be taken not to move the center shaft. Replace the dial.

BROILER BURNER: To remove the broiler burner, after taking off the griddle, loosen the small set screw on the back of the broiler burner which passes through the yoke of the burner and against the broiler shaft. Pry the burner and the shaft apart until the yoke of the burner is released from behind the pin which goes through the shaft. The burner can then be pulled to the left off the mixer pin and out of the broiler box. The burner is replaced the reverse of the above, and care must be taken to see that the inner end of the broiler burner shaft passes through the support bracket and into the socket in the neck of the broiler burner.

If, after the broiler burner is replaced, the griddle strikes on the cooking top on either side so as not to let it rest in the proper recess, adjustment is provided by the broiler burner locator, which is a small metal plate on the under side of the broiler burner yoke, held in place by two screws. First loosen the small set screw on the back of the burner, then the two screws which held the locator. Pull the burner slightly to either side at the front

end, away from the side on which it strikes. Hold the burner steady until the locator screws are tightened, then tighten the set screw.

GRIDDLE: If the griddle plate does not appear to be level, it can be straightened easily by striking it diagonally across the edge of a table or bench while it is cold. When the griddle is replaced on the broiler burner, the two small set screws on top of the broiler burner should be adjusted so that they just touch the bottom of the plate, in which position they can be locked by the lock nut provided. (See Chambers Cook Book for further instructions on care and use of griddle.)

RACK RUNNERS: Each runner is held in place by only one bolt through the back flange. The front flange slips in behind the edge of the cast iron inside oven front. The head of the bolt holding the left runner in place can be reached by removing the left end panel. The bolt holding the right runner is accessible from the inside cabinet compartment.

GRIDDLE LIFT HANDLE ADJUSTMENT: First, remove the left end panel. Adjustment of the griddle lift handle can be made by loosening the lock nuts on the bolt attached to the broiler burner shaft assembly, and adjusting the link so that the griddle lift handle hangs vertically when the griddle is in the down position.

SPECIAL INSTRUCTIONS ON OVEN THERMOSTAT:

It is rare to find a thermostat that is actually defective and when trouble is experienced, it is usually traceable to one of the following causes:

1. If the thermostat dial is binding on the front panel, it will not cut off at lower temperatures. The set screw which holds the handle and dial in place should be loosened and the dial pulled straight out of the shaft until it no longer binds. Tighten the set screw, being careful not to move the dial from its original setting.

2. Dirt under the valve seat will prevent the thermostat from cutting down to by-pass. This can be remedied by removing the large hexagon nut on the back of the thermostat which releases the valve spring and disk. Clean the inside of the thermostat and the face of the disk with a dry cloth and reassemble. Be sure that the spring and disk go back in place exactly as they are removed.

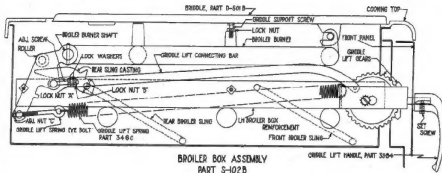
3. By-pass and safety pilot adjustments can not be made too carefully according to instructions given in this sheet. Poor adjustment of either one does not give the most efficient and economical operation.

4. Damage to capillary tube or bulb allowing the charge to escape makes the thermostat inoperative. This can only happen if the thermostat is mishandled by someone not realizing this.

5. The unit should never be disassembled beyond the occasional removal of the hexagon nut for cleaning. This can be done without removing the thermostat from the range.

BROILER AND GRIDDLE

Figure 1



GRIDDLE MECHANISM: To inspect, remove left end panel, per Installation Instructions reproduced at the front of this Service Manual. If the Griddle Lift Handle moves without raising the Griddle, and, if the set screw that holds it to the shaft is tight, the Griddle Lift Gears probably are out of mesh. We suggest changing the complete Left Hand Broiler Box Reinforcement Assembly per Figure 3.

TO MAKE GRIDDLE LIE FLAT: If Griddle Lift Handle is in vertical position and Griddle does not lie flat on the cast-iron cooking top, the Griddle Adjusting Screw and Lock Nuts A and B can be adjusted to change the length of the Griddle Lift Connecting Bar. More details in Figure 8.

GRIDDLE LIFT SPRING (PART No. 3460) COUNTER-BALANCES GRIDDLE: If the weight of the Broiler and Griddle is not properly counter-balanced when these parts are lifted or lowered, adjust Nut C. This Nut controls the tension of the Griddle Lift Spring hooked between the reinforcement and an Eye-Bolt.

GRIDDLE SUPPORTS: Two Hexagon bolts and Lock Nuts support the middle of the Griddle. These Griddle Supporting Screws should touch the Griddle when it is resting in a horizontal position. More details in Figure 9.

TO REMOVE GRIDDLE LIFT HANDLE (PART No. 3984): Loosen set screw on under side of handle with an Allen wrench; the screw is $\frac{1}{4}$ " hollow head type, and more accessible when griddle is raised.

Figure 2



LEFT HAND BROILER BOX REINFORCEMENT ASSEMBLY (PART No. S-160B): This part is replaceable only as a completely assembled unit; through the front of the range. Current part No. S-160B can be used on all B-models even though its structure is somewhat different from reinforcements used on a few early B-series ranges.

GRIDDLE LIFT HANDLE ADJUSTMENT: View at right shows how the Adjusting Screw and Lock Nut locate the Griddle Lift Handle, which should be vertical when griddle is horizontal. Loosen Lock Nut and move Broiler Lift Handle Adjusting Screw to locate handle properly.

TO CHANGE PART No. S-160B SEE FIGURE 3

How to Change LH Broiler Box Reinforcement Assembly No. 5-160B

TOOLS REQUIRED:

1. One small screw driver
2. One medium screw driver
3. One Allen wrench for $\frac{1}{4}$ " Allen head screw
4. One light hammer
5. One steel drift having $\frac{1}{16}$ " flat point and about 6" long
6. One $\frac{3}{8}$ " x $\frac{1}{4}$ " end wrench about 6" to 8" long
7. One $\frac{3}{8}$ " square box wrench
8. Filers
9. Flash light
10. Four or five spare $\frac{1}{16}$ " square nuts

CAUTION: Keep all stove parts, bolts, etc., together in a box to avoid losing.

Figure 3



1. Release spring by removing nut (A).
2. Remove stud (B) by inserting screw driver through opening in front of range and in back of side gear (G) and prying. Then pull stud out with pliers. This stud may be tight, and a little solvent oil will be helpful in removing rust.
3. Remove $\frac{1}{4}$ " hexagonal nut (C) to release Griddle Lift Bar.
4. Remove screw (D).
5. Use drift to drive out taper pin (E), thus releasing Rear Griddle Sling.
6. Force left ends of both Griddle Slings into inside of Broiler Box.
7. Remove lock nut (F).
8. Raise Side Gear (G) with fingers and draw through opening in side panel.
9. Pull remaining assembly straight forward through opening in front of range.

Retrace steps in mounting new assembly after first removing side gear with Griddle Lift Bar from the new assembly. Adjust side gear so that punch and paint marks on teeth match similar marks on

REMOVE THE FOLLOWING:

Two front grates, drip rings and front top burners
Cabinet tray
Baffle plate
Oven burner
Griddle and broiler pan
Remove front panel and left end panel per "Installation Instructions". Before removing front, be sure to turn thermostat dial to 450° and replace on same position on stem when remounting stove to avoid alteration of thermostat setting. In removing end panel it is desirable to first detach the base by removing one screw from each front corner and pulling forward. Remove with screw driver the three screws located inside the broiler box on left side of box.

END VIEW AFTER
REMOVING END PANEL

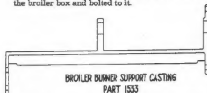
front gear. Before re-assembling panels, mount Broiler Lift Handle on shaft and test carefully with Broiler Pan and Griddle in position. If Griddle does not raise and lower properly, then gears are not meshed properly in accordance with the markings. If Griddle does not balance, adjust spring with nut (A). Complete re-assembly.

NOTE: On later models, spring hooks into reinforcement in front; see Figure 1.

Figure 4

BROILER BURNER SUPPORT CASTING (PART No. 1533):

Has no removable parts; is located in the rear of the broiler box and bolted to it.



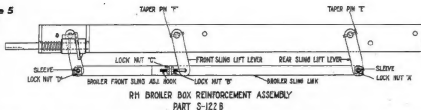
BROILER BURNER SUPPORT CASTING
PART 1533

TOOLS recommended by Chambers Corporation for installation and service of all Chambers Ranges, including current "B" models.

Name of Tool	Size	Used For
Wrench (open end)	$\frac{3}{8}$ " x $\frac{1}{2}$ "	Pilot tube nuts, cooking top, end panels, etc.
Wrench (open end)	$\frac{3}{8}$ " x $\frac{1}{4}$ "	All $\frac{1}{4}$ " nuts, griddle adjustment bolt, leg bolts, etc.

Name of Tool	Size	Used For
Wrench (open end)	$\frac{3}{8}$ " x $\frac{1}{2}$ "	Orifice caps, burner tubing, etc.
Wrench (open end)	$\frac{3}{8}$ " x $\frac{1}{4}$ "	Leg bolt lock nut, thermostat valve dust cap out, etc.
Wrench (open end or adjustable)	1"	Hooking up tubing to manifold
Wrench (pipe)	8"	General use
Wrench (pipe)	18"	Hooking up pipes, etc.

Figure 5



RIGHT HAND BROILER BOX REINFORCEMENT ASSEMBLY (PART No. S-122B): This mechanism controls the position of the Sizzling Platter Slings; is replaceable only as a completely assembled unit, except for the Broiler Sling Link.

TO REMOVE: Knock out Taper Pins E and F; remove both front and rear Sling Lift Levers, four bolts with heads accessible from inside the broiler box. One bolt can be reached only from the front of the range, necessitating removal of porcelain front panel.

IF REMOVING BROILER SLING LINK (PART No. S-124B): Save the two $\frac{1}{4}$ " diameter Sleeves on each end of the Broiler Sling Link; use in reassembling; they

prevent Lock Nuts A and D from binding on the link when tight.

TO LEVEL SIZZLING PLATTER (PART No. D-500): The Broiler Sling Link connects the front and rear slings. If the Sizzling Platter (broiler pan) is not level or parallel to the cooking top when Platter is in its Highest position, the Broiler Front Sling Adjustment Hook can be adjusted by moving Lock Nuts B and C, threaded on the Adjusting Hook. This synchronizes front and rear slings. The Rear Broiler Sling furnishes power to raise and lower the Sizzling Platter. The Front Broiler Sling is powered from the Rear Sling by the Broiler Sling Link. Details of Slings in Figures 6 and 7.

Figure 6

FRONT BROILER SLING ASSEMBLY (PART No. S-109B): Replaceable only as a completely assembled unit. The Sling Lift Lever is fastened onto the end of the Sling with a taper pin that must be removed when removing assembly from range.

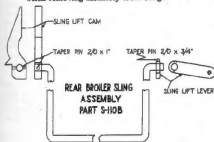
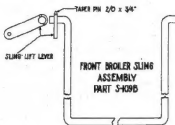


Figure 7

REAR BROILER SLING ASSEMBLY (PART No. S-110B): Replaceable only as a completely assembled unit. The Sling Lift Cam and Sling Lift Lever, on left and right ends respectively, are fastened with taper pins, which must be removed to disassemble or remove from range.



Name of Tool	Size	Used For	Name of Tool	Size	Used For
Wrench (Allen)	8" or 10" handle	All handle set-screws	Thermometer (any reliable make)		Calibrating oven
Wrench (box)	$\frac{1}{2}$ " opening	All $\frac{1}{2}$ " nuts, panels, etc.	File (flat bastard)	16"	Dressing oven doors
Screw-driver	$\frac{1}{4}$ " width 10" handle	Thermometer dial, etc.	File (flat mill)	8"	General use
Screw-driver	$\frac{1}{2}$ " or $\frac{3}{4}$ " width 10" handle	General use	File (round or rat-tail)	$\frac{1}{4}$ " dia.	General use
Hammer (small ball-pen)		General use	1 oz. or 2 oz. can of graphite		Lubricating valves, valve stem extensions, etc.
Drift or punch	$\frac{1}{32}$ "	Removing tapered pins, etc.	Oil can (small)		General use
Level (8" no shorter)		Leveling range, oven, etc.	Pair of Pliers (medium size)		General use
			Drill (from size #70 to #15)		Chocking orifice sizes, oven burner port sizes, etc.
			Electric Drill ($\frac{1}{4}$ " chuck)		General use (optional)

BROILER AND GRIDDLE

Figure 8

BROILER BURNER SHAFT ASSEMBLY (PART No. S-115B): Is replaceable only as a completely assembled unit, except for the Griddle Adjustment Screw. The Cross Pin and Lift Casting are attached with taper pins, making replacement of the complete assembly necessary.

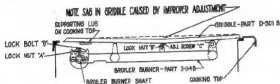
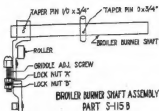


Figure 9

TO KEEP GRIDDLE FROM WARPING: Lock Nuts B should be loosened and Adjusting Screws C turned counter-clockwise until they touch the bottom of the Griddle when it rests horizontally on front and rear of cooking top. Figure 9 shows clearly what can happen to the Griddle (a flexible aluminum casting) if adjusting screws are not raised before heat is applied. Moreover, the broiler burner should never be used to heat the kitchen.

TO STRAIGHTEN A WARPED GRIDDLE: Place face down on the floor and step on the center. Or pound Griddle with a rosin or wooden mallet; or bend it over the corner of a wooden table. Do not place Griddle on concrete or any other material that will mar the surface. Be sure to see that all adjustments for Griddle position are correct after straightening.

TO CENTER GRIDDLE IN COOKING TOP OPENING: Raise the broiler burner, leaving Griddle attached. Loosen Lock Nut A and Lock Bolt D. Loosen with a screw driver the two Broiler Burner Locator

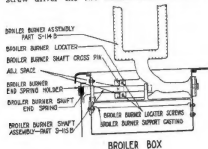
Screws (Figure 10). Move broiler burner up or down in Adjusting Space (Figure 10) to center Griddle in cooking top opening. Tighten Broiler Burner Locator Screws and Lock Nut A and Lock Bolt D.

SPOTS ON GRIDDLE: Occur when griddle has not been properly cleaned before use. Tiny grease splatters from top burner cooking "burn in", making dark spots, if not wiped off before broiler burner is lighted. Of course the griddle should be washed, and scoured if necessary, after each use. Fine steel wool and hard rubbing will remove burned-in spots; additional cleaning suggestions appear on page 2.

The original bright finish of the aluminum can be restored by using a firm buffing wheel with Tripoli compound. Best results are obtained with a buffing stand, so that the Griddle can be held against the buffing wheel; a portable buffing wheel is not as satisfactory.

Figure 10

TO REMOVE BROILER BURNER (PART No. 114-B): Loosen Lock Nut A and Lock Bolt D (Figure 9). This allows freedom of movement for Broiler Burner Shaft. By using a screw driver in a twisting motion, between Broiler Burner Shaft Cross Pin and Broiler Burner itself, Broiler Burner Shaft can be forced against Broiler Burner Shaft End Spring, to remove Broiler Burner. This can be done without removing left end panel, Broiler Burner End Spring Holder or Broiler Burner Shaft End Spring. When Broiler Burner has been replaced, be sure to check griddle position.



THERMOWELL AND GAS TUBING

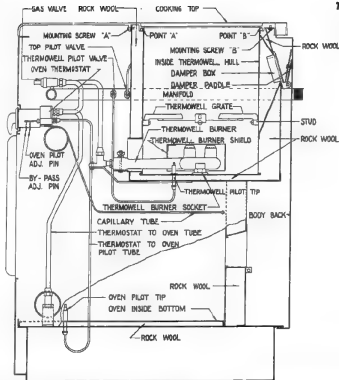


Figure 11

TO REMOVE THERMOWELL: Loosen and remove Body Back, per Installation Instructions. Remove Thermowell Damper Control Rod, the tubing leading to Thermowell Burner, and Thermowell Pilot Tubing. Then remove two bolts vertically threaded to the Cooking Top, shown as Mounting Screw B. Next remove Mounting Screw A, accessible from right front top burner opening. After these three bolts have been removed, the entire Thermowell unit can be dropped down and lifted out from the rear of the range. When replacing this unit, it is important to place Mounting Screw A in position first; next, make sure that the Inside Thermowell Hull is pulled up securely against the Cooking Top—see "Points A & B."

THERMOWELL REPLACEMENT BOTTOM (PART No. 3970): Provides a quick reinforcement if Inside Thermowell Bottom gets damaged. To install this stippled, enameled disc, of false bottom, remove Thermowell burner and bolts holding two Thermowell burner sockets. Put Replacement Bottom in the

Thermowell with holes correctly placed to clear pilot and permit bolting of Thermowell burner sockets.

THERMOWELL GRATE (PART No. 1542): Must be placed on the four studs bolted to the inside Thermowell lining. If not, the flame can be smothered and Thermowell utensils blackened with soot.

THERMOWELL BURNER (PART No. 5-1308h): Must be placed properly in the two Thermowell Burner Sockets. Correct Thermowell Burner adjustment appears in Installation Instructions.

THERMOWELL PILOT ASSEMBLY (PART No. 5A-9): Includes Pilot Tip (No. 4002) which is protected by the Burner Shield bolted onto the Thermowell burner. See Installation Instructions for adjustment.

NEVER IMMERSER THERMOWELL LID IN WATER: Wipe with damp, soapy cloth, and scour if necessary. Never clean porcelain bottom surface while hot.

DAMPERS, DOORS AND VALVES

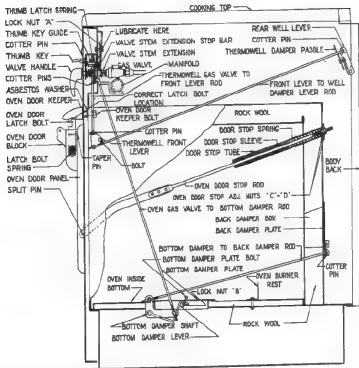


Figure 12

OVEN BOTTOM DAMPER ADJUSTMENT: When the Oven Valve Handle is turned, the Oven-Gas-Valve-to-Bottom-Damper Rod opens or closes the Bottom Damper Lever, which opens and closes the Bottom Damper Plate. If the Bottom Damper Plate does not open and close properly, remove Cotter Pin on upper end of the Oven-Gas-Valve-to-Bottom-Damper Rod, and increase or decrease length of this rod by use of threads on bottom end of rod. Be sure to replace Cotter Pin after adjustment. The Bottom Damper Plate is held in place by the Bottom Damper Bolt, threaded through the supporting reinforcement. This bolt is held by Lock Nut B, on the under side of the reinforcement. Only a small portion of the Bottom Damper Plate Bolt is threaded for adjustment, leaving the remainder smooth, so that the Bottom Damper Plate will not bind when moved.

ADJUSTMENT OF OVEN BACK DAMPER: If the Oven Back Damper Plate fails to open and close properly, the Bottom-Damper-to-Back-Damper Rod can be adjusted by removing Cotter Pin on rear end of rod. By increasing or decreasing the length of this rod, the Back Damper Plate can be made to seal properly. Open and close Oven Valve Handle to determine correct Back Damper Plate Adjustment.

THERMOWELL DAMPER MECHANISM: When the Thermowell Valve Handle is turned, the Valve Stem Extension moves through a 90° arc, thereby moving the Thermowell-Gas-Valve-to-Front-Lever rod, pinned to the Front Lever. Front Lever is bolted to body of range, and forms a medium through which the Front-Lever-to-Well-Damper-Lever Rod is fastened. This rod has an adjustment for the tension of the Thermowell Damper Paddle.

ADJUSTMENT OF THERMOWELL DAMPER: If the Thermowell Damper Paddle fails to close securely against the Damper Box when the Valve Handle is in a vertical or closed position, the tension of the Thermowell Damper Paddle can be changed. Remove the Cotter Pin on the rear end of the Front-Lever-to-Well-Damper-Lever Rod, and increase or decrease the length of this rod until the tension is correct. The Thermowell Damper Paddle is constructed with a slight spring tension and does not require extreme pressure against the Thermowell Damper Box to maintain a good seal.

BINDING GAS VALVE HANDLES: If a valve handle tends to grate or bind when turned, lubricate between the Valve Stem Extension and Thumb Latch Bottom Guide (Figure 12, "Lubricate Here"). Use a correct lubricant such as a graphite-base valve lubricant, or any good heat-resisting compound. On rare occasions it may be necessary to force the Thumb Latch Bottom Guide up, with hammer and screw driver, to allow additional relief between Guide and Valve Extension. Turn valve handle back and forth after lubricant has been applied.

OVEN DOOR ADJUSTMENTS: When the oven door is wide open, it should be parallel with the floor. If a door adjustment is necessary, the Body Back should be removed per Installation Instructions. When the oven door is closed, two Door Stop Rods are visible on the rear of the range, on which are threaded a set of Oven Door Adjusting Nuts C & D. By loosening these Lock Nuts and changing their location, the open oven door can be made parallel with the floor.

TO REPLACE OVEN DOOR STOP SPRINGS (PART No. C-128): Remove Oven Door Adjusting Nuts C & D, when oven door is closed. The Door Stop Spring can be removed and replaced. Replace Oven Door Adjusting Nuts C & D, and adjust height of open oven door.

TO REPLACE OVEN DOOR STOP ASSEMBLY (PART 5-1088): Remove the Oven Door Panel per Installation Instructions: this permits removal of the Split Pin holding Door Stop Rod to cast oven front. The Door Stop Tube and Door Stop Rod can be removed completely, by pulling from back of oven. It is not necessary to loosen or remove Oven Door Adjustment Nuts C & D.

TO CORRECT IMPROPER DOOR SEAL: First, examine contact between Oven Door Latch Bolt and Oven Door Keeper, at point marked "Correct Latch Bolt Location". It is absolutely necessary that the tapered part of the Latch Bolt make contact with the Oven Door Keeper at the correct position shown in Figure 11. If the Oven Door Latch Bolt is not located properly, there will be insufficient pressure to pull the Oven Door securely against the Cast Oven Front. If additional pressure is required, remove the Oven Door Keeper by turning it counter-clockwise from the Oven Door Keeper Bolt, with a pin placed in the hole on the under side of the keeper. Either dress off a portion of the keeper, or remove the asbestos washer, if the keeper needs to be threaded closer to the Cast Oven Front. When the Oven Door Keeper

needs to be located farther from the Cast Oven Front, additional washers can be added. Second, check oven door lining (part No. 4142). It is sometimes possible to correct the oven door seal by loosening four bolts that hold the Inside Oven Door Liner and shifting the door. When the four bolts are again tightened, the door should seal properly. Occasionally chunks of rock wool insulation under the Oven Door Liner cause an uneven pressure on the oven door when the lining is tight. A careful inspection should be made to correct these difficulties before attempting to dress off the cast iron oven door frame with a file.

To refit cast iron oven door frame (part No. C-4), remove the Oven Door Lining by loosening four bolts. Remove all rock wool insulation, and check the seal of the oven door with a paper to determine which portion of the door should be dressed. It is very important that there be no bind at the bottom of the oven door. Dress the Cast Iron Oven Door Frame with a 16" file, in a semicircular motion, by hand, to remove high spots. This will produce a paper tight seal between the Cast Oven Door Frame and Cast Oven Front, especially along the top edge. A paper tight fit across the bottom is not necessary.

CAUSE & CORRECTION OF CONDENSATION: When the oven burner is first lighted, there is an extreme temperature change inside the oven. Immediately drops of moisture form on oven linings; sometimes they collect on the outside oven door and front panel, a few may run down on the floor, this is called "condensation". It is not alarming and should disappear in fifteen to twenty minutes, when the oven temperature reaches sufficient height.

A careful check should be made on the seal of the oven door, and, if necessary, re-dress as explained above. It is possible to have condensation with a properly fitted oven door. In such cases, the oven door should be left slightly ajar for a few minutes after the gas is lighted. It also is important that the oven burner gas input be correct (21,000 BTU's per hour); it should not exceed this.

REPLACEMENT OF CAST OVEN FRONT & DOOR FRAME ASSEMBLY (5-1458): No. C-1 Cast Iron Oven Front and C-4 Cast Iron Oven Door Frames are assembled in matched sets at the factory. They are faced and hand dressed to fit in matching pairs; after this machining process, the door frame is pinned to the front, and these two pieces should remain together. If it is necessary to replace either the No. C-1 Cast Oven Front or No. C-4 Cast Oven Door Frame, order the complete No. 5-145 assembly.

TO CHANGE CAST OVEN FRONT: Remove the front panel per Installation Instructions. No. C-1 oven front is held in place by eight bolts, two on every side. Remove these and straighten the metal flange on sides and bottom of oven front. Remove two centrally located bolts on each side, bolts holding oven frame and Inside Oven Lining together. Do not lose the scrap nut located behind the flange of the oven lining. The Oven Front can now be pulled out at the bottom and removed. Reverse this procedure to replace.

TO CHANGE CAST OVEN DOOR FRAME: Remove Inside Oven Door Lining by loosening four bolts. Remove all rock wool insulation. Remove three bolts in the center of the cast oven door frame to remove Oven Door Handle Block. Be sure to save two $\frac{1}{4}$ " sleeves between block and door casting; these prevent breakage. Oven Door Panel can now be lowered away from cast door frame, after four nuts are removed from corners. Two sets of Split Pins must be removed: two holding the Door Stop Rods on the sides, and two holding the Cast Oven Door Frame to the Cast Oven Front Lugs. Reverse this procedure to replace No. C-4 Cast Oven Door Frame.

OVEN DOOR LUGS: Are riveted to the cast oven front and are not replaceable. If a lug is broken, replace the complete S-145B cast door assembly.

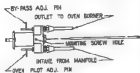
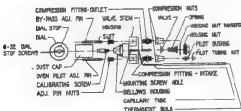
TO REMOVE GAS VALVE: Loosen Lock Nut A (Figure 12), and slide Valve Extension Stop Bar as high as possible; tighten Lock Nut A. This allows enough clearance to free the Valve, when the Valve Handle, attached to the Valve Stem Extension, is pulled

Figure 13



forward as far as possible. The Tubing Nut must be removed to permit freedom in turning Gas Valve. Valve can now be turned counter-clockwise and removed from manifold. It is important that only a very small film of Valve Lubricant be applied to the Core of the valve, after it has been thoroughly cleaned. Apply lubricant as indicated; if cleaning and lubrication fail to correct the difficulty, order a new gas valve, Part No. 3945. Never, under any circumstance, use oil on a valve core.

THERMOSTAT



MODEL AQ THERMOSTAT - PART 414-5

COMPONENT PARTS OF MODEL AQ THERMOSTAT (PART No. 4145): Thermostats are assembled by the manufacturer; calibrated; and must be ordered as a complete unit, except for handle, dial and dial stop. Bakelite dials shipped on replacement thermostats are to be replaced after installation.

HANDLE, DIAL AND DIAL STOP: Are held together as a unit by two Dial Stop Set Screws. Dial Stop provides a stopping point when handle is rotated.

DUST CAP: Is only a covering to keep dirt from the intricate parts of the thermostat.

OVEN AND BY-PASS ADJUSTING PINS: Each pin has a slot which governs the quantity of gas, when the Adjusting Pin is rotated past a hole in the body of the thermostat.

CALIBRATING SCREW: Is threaded into the Bellows Housing. The Handle is attached to this part. Calibration of the thermostat is changed by moving the Handle and Dial Assembly on this Calibrating Screw.

ADJUSTING PIN NUTS: Thread into the thermostat housing. When tightened, they squeeze small lead washers on the two Adjusting Pins, preventing leaks when pins are rotated.

BELLOWS HOUSING: Merely a covering for the Bellows.

MOUNTING SCREW: The only bolt used to fasten thermostat to range.

HOUSING: Heavy aluminum body to which all parts are attached.

VALVE STEM: This small pin connects bellows movement with Valve. Care should be taken to see that this stem moves freely in its seat.

COMPRESSION FITTINGS: Thread into housing and hold the tubing nuts.

COMPRESSION NUTS: Thread onto Compression Fittings which hold Intake and Outlet tubes.

TO CLEAN VALVE: Remove Housing Nut and Spring; remove Valve which fits over Valve Stem, and clean with soft, dry cloth. When foreign matter is lodged under Valve, it is held open and the correct amount of gas does not reach the oven burner.

NOTICE SPRING POSITION: The small end of the Spring should be placed over the Valve; large end fits into the Housing Nut. If this position is reversed, uneven pressure will be applied to the Valve.

PILOT BUSHING: Threads into body of thermostat.

PILOT TUBING NUT: Holds the pilot tubing over the hole in the Pilot Bushing with a gas-tight seal.

HOUSING NUT AND WASHER: Thread into the rear of the thermostat, burnishing a holder for Spring and Valve. To clean Valve, do not remove thermostat from range; simply remove Housing Nut and Housing Nut Washer.

IF THERMOSTAT DIAL BINDS, when Dial Handle is turned, the thermostat will not function properly. To correct this, loosen the Set Screw on the under side of the Dial Handle, slip the Dial out (usually about $\frac{1}{4}$ "), and tighten set screw.

COLD CALIBRATION. To determine whether or not the thermostat is out of calibration, light the oven burner and rotate the Thermostat Dial counter-clockwise to 70° . The oven burner flame should change from maximum to minimum. If this does not occur, loosen the Set Screw on the Dial Handle, pull the Dial Assembly off the Calibrating Screw, and rotate the Calibrating Screw counter-clockwise until the flame changes from maximum to minimum. Replace Dial Assembly at 70° setting.

HOT CALIBRATION: First, see that oven is adjusted per Installation Instructions reprinted in this Service Manual. Then proceed as directed in the same section, under "Thermostat Calibration," page 6.

WHEN BY-PASS REMAINS TOO HIGH, even though by-pass adjustment is turned completely off, clean the thermostat as explained in an earlier paragraph. This should correct the difficulty unless the chemical charge in the tube has been lost.

TO REPLACE THERMOSTAT: Remove the tubing attached to the thermostat; loosen Set Screw in Dial Handle and remove Dial; remove Mounting Screw. This frees the unit from the range. Remove three brass fittings threaded to the housing, and use them in same position on new thermostat. Install new thermostat by reversing this procedure. Under "Thermostat" heading on last page of Installation Instructions, is additional information.

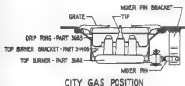
Tools needed: 1 medium-size screw driver, 2 open end or adjustable wrenches, to remove tubing nuts.

CONVERSION (OR CHANGE-OVER) FROM CITY TO LP GASES AND VICE VERSA FOR "B" MODEL ONLY

CITY GASES: Natural, Mixed, Manufactured and Butane-Air.

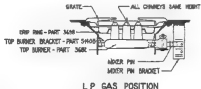
LIQUEFIED PETROLEUM (LP) GASES: Butane, Propane, and similar bottled or tank gases.

Figure 15



CITY GAS POSITION

Figure 16

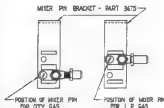


LP GAS POSITION

"LOW" TOP BURNER POSITION FOR CITY GASES: Used on natural, mixed, manufactured and butane-air gases. Requires regular or deep drip ring and tips or prongs on top burner chimneys, to prevent flame-smothering, should grate be removed and utensil set on burner.

"HIGH" TOP BURNER POSITION FOR LP GASES: Because of the high BTU content of LP gases, the flame is smaller; less air and less space are needed for good top burner combustion. Efficient operation of top burners requires high position and shallow drip rings. City gas burners can be used if chimney tips are cut off with a hack saw. If used without top pilot, pilot holes in city gas top burners must be plugged.

Figure 17



MOVE MIXER PINS (PART No. C-82): Whenever position of Top Burners is changed, Mixer Pin Brackets are formed to hold Mixer Pin securely in place when bolted in either high or low position. It is not necessary to remove tubing when moving Mixer Pin.

CONVERSIONS

Figure 18



DIFFERENT DRIP RING DEPTHS: Required by high and low top burner positions. No. 3683 deep drip ring is used on city gases; No. 3698 shallow drip ring is required for LP gases.

GAS PRESSURE: For best results, Chambers Ranges should operate on the pressures given in the table on page 23. To check pressure, remove right front burner, and place rubber hose over orifice cap. Any reliable Low Pressure Gage can be used: Fisher, etc.

DIFFERENT GASES: When changing from natural gas to manufactured gas or mixed, or vice-versa, it is only necessary to change all orifice caps.

When changing to liquefied petroleum gas, the position of the top burner is raised by adjusting the top burner bracket. The same burner can be used provided the long tips are cut off even with the other chimney. The drip rings must be changed to allow for the change in burner position. The shallow ring, part #3698, is used instead of the regular drip ring part #3683. The reverse is true when changing from LP to some other gas.

All orifice caps must be changed and a sealer such as #2 Permatex used to seal the threads. Also all joints, connection and gas valves should be carefully checked for leaks.

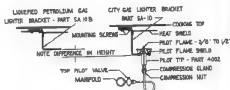
ADJUST TOP BURNER BRACKETS (PART No. 5-140B): To hold Top Burners in high or low position. Burner Bracket Clips are held by removable $3/16"$ bolts. Two brackets to a burner.

LP GAS FLAME IS LOWER THAN CITY GAS FLAME ON SAME BURNER: On oven and broiler burners, full flame is about $3/4"$, instead of the $1/2"$ full city gas flame. LP gas does not produce a sharp or firm cone at each port; the tips of the cones tend to run together. If above pressure of 11" (water column) for LP gas is not used, burner input will not be correct.

SAME OVEN AND BROILER BURNER for all kinds of gases —on all B-models.

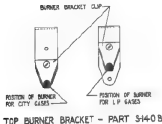
SAME PORT DRILLING used for all kinds of gases—on all B-model burners.

Figure 20



TOP PILOT LOCATION FOR DIFFERENT GASES

Figure 19



TOP PILOT BRACKETS (PARTS 5A-10 & 5A-10B): The same Top Burner Pilot Assembly, except for the bracket, is used for all kinds of gases. High position of LP top burners requires short Top Pilot Brackets; change bracket when converting from city to LP gas, or vice versa. To remove bracket, remove two Mounting Screws which hold it to the cooking top. Remove Top Pilot Tip by unthreading it. Remaining shield and ring assembly can be separated from the bracket by straightening two metal prongs protruding through it. Reassemble on new bracket; install; adjust per Installation Instructions.

CONVERSION PARTS (B-MODELS ONLY)

TO CHANGE FROM NATURAL MIXED OR MANUFACTURED GAS TO LIQUEFIED PETROLEUM GAS: WITHOUT PILOTS

Quantity	Part No.	Part Name
6	A	Orifice caps—fixed type
3	3698	Drip rings—shallow
3	3682	Top burners—without pilot holes—without tips on chimneys
1	S-130BB	Thermowell burner—with trailer lighter for hand ignition through service cabinet
2	4233	Pilot hole plugs for manifold

WITH TOP BURNER & THERMOWELL PILOTS

6	A	Orifice caps—fixed type
3	3698	Drip rings—shallow
1	SA-10B	Top pilot bracket assembly—short

Original top burners can be used by sawing tips from chimneys. They also can be used without top pilot, if pilot light holes are plugged.

B-valve Thermowell pilot assembly for LP gases can be installed on B-models, permitting permanent Thermowell pilot adjustment as usual at pilot valve in manifold, plus convenient, manually operated valve in service cabinet.

To change FROM NATURAL TO MIXED GAS: Either order 6 new orifice caps, or enlarge original oven and broiler orifices with No. 39 drill; enlarge top and Thermowell orifices with No. 48 drill.

To change FROM NATURAL TO MIXED GAS TO MANUFACTURED GAS: Either order 6 new orifice caps, or enlarge original orifices with No. 15 drill for oven, broiler; No. 39 drill for top Thermowell

DIFFERENT ORIFICE SIZES: A burner, properly regulated, burns approximately the same number of BTU's per hour, regardless of the type or heat content of the gas in use. This is accomplished by orifices or holes of different sizes in the Orifice Cap which injects gas into the burner. The richer the gas in heat value, the smaller the orifice.

ADJUSTABLE ORIFICE CAPS: For City Gases (Natural, Mixed, Manufactured, Butane-Air). Because City Gases within each classification vary somewhat in BTU content and pressure, adjustable Orifice Caps are used. In the Mixer Pin, notice the needle point which provides a gas adjustment by screwing the Orifice Cap.

FIXED ORIFICE CAPS: For Liquefied Petroleum (LP) Gases. Long Orifice Caps for LP gases can be used with or without needle points in the mixer pins; length of cap makes needle points ineffective. Short LP gas Orifice Caps require removal of needle points. Orifices for LP gas are too small to make a gas adjustment at the burner feasible; the size of the hole in the Orifice Cap, and gas pressure determined by the regulator on the LP system, control the BTU input.

TO CHANGE FROM LIQUEFIED PETROLEUM GAS TO NATURAL, MIXED OR MANUFACTURED GAS:

6	A	Orifice caps—adjustable
6		Needle points
3	3683	Drip rings—deep
3	3682	*Top burners
1	S-121B	*Top pilot assembly
1	SA-9	*Thermowell pilot assembly

*If original bottle gas equipment included pilots, these last three items are not necessary, but a new SA-10 long top pilot bracket will be required.

To change FROM MANUFACTURED TO MIXED OR NATURAL GAS: Order 6 new orifice caps.

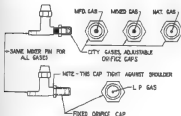
To change FROM MIXED TO NATURAL GAS: Order 6 new orifice caps. Follow Manufactured Gas Specifications for Butane-Air.

CONVERSION PARTS (BZ MODELS ONLY): When converting from one gas to another it is only necessary to change the orifice caps. If the needle points have been removed from the mixer pins, they should be replaced for all gases except liquefied petroleum.

When a Fixed Orifice is used on LP gas, care should be taken to seal the threads with a good sealer such as "2 Permatex" and thread the orifice cap down against the shoulder.

IMPORTANT: When ordering conversion parts, always give MODEL & SERIAL NUMBERS of the range, and the BTU CONTENT of the gas for which new parts are needed.

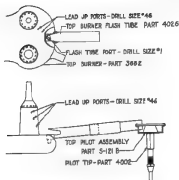
Figure 21



SAME MIXER PIN: Used for all gases. Replacements usually are shipped with Orifice Cap, so SPECIFY KIND OF GAS when ordering.

PILOT AND BURNER DATA

Figure 22

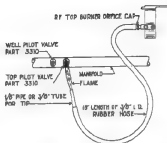


TOP BURNER - TOP BURNER FLASH TUBE

TOP BURNER LIGHTER PORTS: Are clearly illustrated, and the drill numbers are indicated on the drawing.

TOP BURNER FLASH TUBE (PART No. 4026): Is in two parts. The base or larger section is fastened to the ring on the Top Pilot. The outer or burner and telescopes into the base section. There is no air adjustment on the Flash Tube. Gas flows through the fixed opening in the Flash Tube to the Pilot Tip, thus igniting the burner. If burner will not ignite properly, check Top Burner and Top Pilot adjustments in Installation Instructions.

Figure 23



ADJUST TOP BURNER & THERMOWELL PILOT VALVES:

See Installation Instructions. There is an excessive amount of lubricant in new Pilot Petcocks or Valves. If it is not removed by heating these parts before using the range, cooking heat will do so, and the pilot flames later will increase in height. A candle will do to heat the petcocks, but the following equipment is much superior.

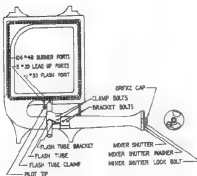
TO "TORCH" PILOT VALVES: Simplest equipment for a service man to use is a piece of rubber hose, about 1½' to 2' long (¾" I.D.), with a metal tip or ¼" pipe nipple in one end. Remove right front grate, drip ring and burner; fasten open end of hose over orifice cap. Turn on burner and adjust gas to 1" to 2" flame on metal-tipped end of tubing. Hold flame under Pilot Petcocks or Valves, and heat for one to two minutes. If Pilot flames increase in height, readjust and "torch" again.

Figure 24

OVEN BURNER (PART No. 5-139B): Has the same number of Port Holes and the same No. 43 Drill Size Ports for all types of gases, regardless of BTU content. Only the orifice cap needs to be changed in converting from one gas to another.

MIXER SHUTTER (PART No. 516): Used on oven and broiler burners. Different kinds of gases require different primary air adjustments, made by moving the Mixer Shutter. Loosen Mixer Shutter Lock Bolt to rotate Mixer Shutter; tighten after correct adjustment (per Installation Instructions) is made.

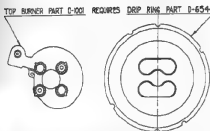
OVEN BURNER FLASH TUBE: Must be located directly over the hole marked Flash Port. If not, the oven will tend to fill with gas before the burner ignites properly, and an unnecessary quantity of gas may explode each time the burner is lighted. Clamp Bolts and Bracket Bolts provide any necessary adjustments on the Flash Tube. Flash Tube should rest on the cast stud adjacent to the Flash Port, to be held at the correct distance from the Flash Port to assure proper combustion.



OVEN BURNER ASSEMBLY - PART 5-139 B

DRIP RING DATA

Figure 25-A

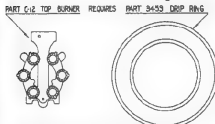


No. 3683 DRIP RING USED ON "A" & "B" MODELS: No. 3683 top burner requires No. 3683 drip ring; used on models 11-B, 12-B, 14-B, 15-B, 11-A, 12-A, 14-A, etc.—also on models 7440-D and 74-D.

NOTICE POSITION OF NOTCHES.

FOR LP GAS: Order No. 3688 Drip Ring—shallow type.

Figure 25-C

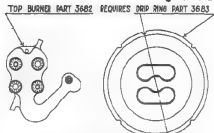


COMPLETE MODEL & SERIAL NUMBERS should be given with every order for parts or request for information. These are on a small metal tag on the outside Thermowell hull, accessible by removing right front grate and drip ring, on Thermowell models. On other heat-controlled styles, look in the back top burner box, after removing back top grates. On still older models, look on the frame.

TO INSTALL "AF-2" CONTINUOUS-RING TIMER:

1. Remove timer dial plate by removing four bolts that attach it to shelf hands. Threaded into timer dial plate are two $\frac{3}{16}$ " bolts on each side, with heads under the shelves on the inside of the bands.
2. Remove plastic handle and metal pointer by removing screw from face of handle.
3. Remove $\frac{3}{4}$ " ferrule bushing from timer stem, and save it. This ferrule bushing is important in the timer assembly.
4. Place dial on timer dial plate, and tighten two nuts provided for this purpose.

Figure 25-B



No. D-654 DRIP RING USED ON STRAIGHT No. 11 & No. 7141-B MODELS: Also used on models 7440-B and 74-B. Goes with No. D-1001 top burner. Some early D-654 drip rings had only one pair of notches, but can be replaced by type illustrated.

NOTICE POSITION OF NOTCHES.

SPECIFY GAS WHEN ORDERING: Same part number used for both deep and shallow drip rings.

No. 3459 IMPERIAL DRIP RING: Used on Imperial models 7960, 7961, 7980, 7982, 79, and on Imperials with letters "B" or "A" following model numbers. Also used on model 7141, 7041, 7141-A, 1041 and 1141 (both Autostat and thermostat styles), and on model 6241.

USED WITH C-12 TOP BURNER: Also used with other burners on older 1000 and 5000 series ranges.

SAME DRIP RING FOR CITY & LP GASES: Except in early 1000 series ranges where an indentation is necessary for LP gas.

GIVE MODEL & SERIAL NUMBERS & KIND OF GAS WHEN ORDERING.



5. Loosen two nuts on the back of timer dial plate; place timer on timer plate, with flange on the timer under the washer, directly against the timer dial flange. Center timer stem in the hole through which it passes in the timer dial plate; tighten nuts.
6. Replace ferrule bushing on timer stem, with small end of ferrule toward you.
7. Replace plastic handle and metal pointer, and fasten with set screw.
8. Reassemble unit on bands; place heat shield in position; tighten all bolts.

DIFFERENT GAS ADJUSTMENTS FOR DIFFERENT OVEN BURNERS

BY-PASS MUST BE SET LOW on all best-controlled Chambers Ranges. Only 15% of total oven input holds temperature of 390°; only 33½% of total input maintains temperature of 500°.

LP (BOTTLED GAS) CHAMBERS RANGES HAVE FIXED ORIFICES, lower gas flames.

"A" & "B" MODELS refer to models 11-A, 12-A, 11-B, 12-B, etc. When these same letters appear after style or model numbers of older ranges, such as 7141-A and 7141-B, the term A-model or B-model does not apply. Always give complete model and serial numbers when ordering parts; and specify gas.

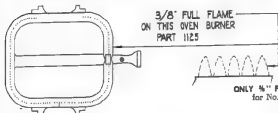


Figure 26-A

ONLY ¼" FULL SOFT OVEN FLAME correct adjustment for No. 1125 burner used on many older models.

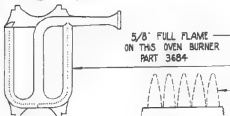


Figure 26-B

¾" FULL SOFT OVEN FLAME correct adjustment for No. 3684 burner used on "A" models, 11-A, 12-A, etc. This burner should have exactly the same BTU input as No. 1125 burner, but there are fewer ports, permitting higher full flame.

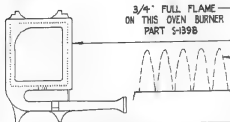


Figure 26-C

¾" FULL SOFT OVEN FLAME correct adjustment for No. S-139B burner of "B" models, 11-B, 12-B, 14-B, 15-B, etc. This burner is smaller in proportion to the cubic contents of the oven (slightly larger than in previous models). Larger capacity and fewer ports permit higher full oven flame.

TO INSTALL "ST" SINGLE-GONG TIMER:

1. Remove timer dial plate by removing four bolts that attach it to shelf bands. Threaded into timer dial plate are two ½" bolts on each side, with heads under the shelves, on the inside of the bands.
2. Pull off plastic handle; remove hexagon nut from timer stem.
3. Place timer on timer dial plate, with stem protruding through center hole and marked "top" of timer in the center of the radius. Make sure two locating flanges fit the two holes provided on each

side of stem to prevent timer from turning on dial plate.

4. Place timer dial on dial plate, with zero at depression marker on timer dial plate.

5. Place hexagon nut on timer stem; tighten to a reasonable pressure.

6. Place plastic handle on timer stem. It may be necessary to adjust dial to correspond with pointer when bell rings.

7. Reassemble unit on bands; place heat shield in position; tighten all bolts.

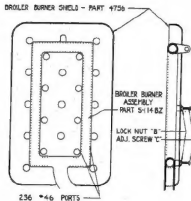
"BZ" MODEL CHAMBERS RANGES

(11-EZ, 12-BZ, 14-BZ, 15-BZ and combinations of these with additional letters and numbers to denote finish)

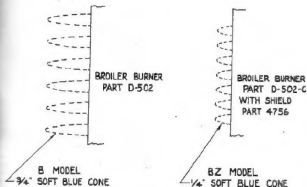
How they DIFFER from "B" models

New BZ Broiler has Shield over Burner and Uses LESS GAS

This new In-A-Top Broiler and Griddle does the same fast, smokeless cooking job as the B-model but does it with less external heat and considerably less gas. The stainless steel burner shield promptly "blues" with use, but gets the same color all over, and consequently is attractive in appearance.



NOTE DIFFERENCE IN HEIGHT OF FLAMES



Broiler Flame must be set much lower

When the gas is adjusted according to this diagram, the BZ broiling time is practically the same as that of B-models. Besides reducing external heat around broiler, and using gas more efficiently, the BZ-model makes it possible to use the Griddle with a full broiler flame.

New Top Burner Positions SAME for ALL GASES

The B-model top burner for bottle gas (part #3982) is used for ALL GASES on the BZ-models.

The B-model bottle gas drip ring (part #3698) is used for ALL GASES on the BZ-models.

This new, high, top burner position reduces cooking top heat; increases speed and efficiency; eliminates part changes for conversions from one kind of gas to another except orifice sizes.

New Top Burner Pilot Grate—reduces cooking top temperature; provides convenient, small, warming burner. *Ridges removed from cooking top in BZ-model; possible with new, high grates.*

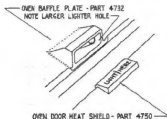


TOP GRATE - PART 4737

Super Speed Grate—adds to increased top burner efficiency.

NO CHANGE IN OVEN EXCEPT AT LIGHTER HOLE

On the BZ-models it is possible for service men and users to see the oven gas flame easily through a widened lighter hole in the baffle plate. "Light here" instructions are placed permanently at the opening, covered by a larger heat shield when oven door is closed.



OVEN DOOR HEAT SHIELD - PART 4750

"BZ" MODEL ORIFICE SIZES

	Gas	BTU Value	Pressure	Drill Size	BTU Input Per Hr.
Oven	Mfd.	570	5"	#29	21000
	Mixed	800	7"	#29	21000
	Natural	1050	7"	#46	21000
	Propane	2500	11"	#55	21000
	Butane	3300	11"	#56	21000
	Butane-Air	540	4"	#29	21000
Broiler	Mfd.	570	5"	#39	15000
	Mixed	800	7"	#39	15000
	Natural	1050	7"	#48	15000
	Propane	2500	11"	#57	15000
	Butane	3300	11"	#58	15000
	Butane-Air	540	4"	#25	15000
Top	Mfd.	570	5"	#46	9000
	Mixed	800	7"	#46	9000
	Natural	1050	7"	#54	9000
	Propane	2500	11"	#68	7500
	Butane	3300	11"	#69	7500
	Butane-Air	540	4"	#31	9000
Well	Mfd.	570	5"	#46	9000
	Mixed	800	7"	#46	9000
	Natural	1050	7"	#54	9000
	Propane	2500	11"	#68	7500
	Butane	3300	11"	#69	7500
	Butane-Air	540	4"	#31	9000

ORIFICE SIZES FOR "B" MODELS ONLY

	GAS	BTU VALUE	PRESSURE	DRILL SIZES	BTU INPUT Per Hour
OVEN	Manufactured	570	5"	#15	21000
	Mixed	800	7"	#39	21000
	Natural	1050	7"	#46	21000
	Propane	2500	11"	#55	21000
	Butane	3300	11"	#56	21000
	Butane-Air	540	4"	#20	21000
BROILER	Manufactured	570	5"	#15	21000
	Mixed	800	7"	#39	21000
	Natural	1050	7"	#46	21000
	Propane	2500	11"	#55	21000
	Butane	3300	11"	#56	21000
	Butane-Air	540	4"	#20	21000
TOP	Manufactured	570	5"	#39	9000
	Mixed	800	7"	#46	9000
	Natural	1050	7"	#54	9000
	Propane	2500	11"	#68	7500
	Butane	3300	11"	#70	7500
	Butane-Air	540	4"	#31	9000
WELL	Manufactured	570	5"	#39	9000
	Mixed	800	7"	#46	9000
	Natural	1050	7"	#54	9000
	Propane	2500	11"	#68	7500
	Butane	3300	11"	#70	7500
	Butane-Air	540	4"	#31	9000

Chambers®
COOKS WITH
THE GAS TURNED *off.*